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DISTRIBUTION OF PTEROSPORA

By D. T. MacDougal

Pine Drops (*Pterospora Andromedea* Nutt.) ranges over a region extending from Mexico northward through California and the Rocky Mountain district into British Columbia, appearing east of the Mississippi River in Michigan, and ranging eastward and also southward along the Alleghany Mountains. These two apparently separate areas are probably joined by a belt extending westward through Canada above the headwaters of the Mississippi. The plant is an inhabitant of the pine or transition zone, and its climatal relations are indicated by its limits in southern Arizona, where it occurs only at elevations between 7,000 and 8,000 feet.

In the course of some recent studies on the physiology of this symbiotic saprophyte (Annals of Botany, 1899) the author was unable to obtain living specimens from eastern United States, and from facts given by correspondents and brought to light by the author, it was concluded that this species was moving toward extinction. It has become extremely rare east of the Mississippi River: not more than a dozen specimens were found in Arizona in a region three hundred miles long, and not a score have been seen in northern Idaho in two seasons' work in collecting.

During the present season, however, the writer has traversed the Mission Mountains as a member of the Biological Expedition from the University of Montana, and met this plant in great abundance. It is found at altitudes of 3,000 to 4,000 feet in the rich humus of coniferous woods, and at one place east of the southern end of Flathead Lake a hundred stalks were counted within a radius of thirty feet of the observer, and many thousands

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were seen in the course of a day's walk. The plant probably attains its greatest density of distribution in this locality.

The plant derives all its food material from humus by the aid of a fungus living in the roots, which form a small compact mass no larger than a golf ball. Any disturbance or departure from the conditions offered by a primitive forest would be detrimental to the growth and development of both the *Pterospora* and the fungus with which it is allied. It will, therefore, probably become extinct in eastern United States, but will retain its foothold among the western mountains until its habitats are ravaged by fire, or by clearing of the forest.

In its habitat in the Mission Mountains, *Pterospora* occurs more abundantly in a given locality than any other known chlorophylless seed plant.

TWO NEW BUSH CLOVERS (*LESPEDEZA*)

By Eugene P. Bicknell

It may well be doubted whether the notable activity of the last few years in the critical exploration and study of our common flora has yet achieved anything more than a very good beginning.

A few years ago the discovery of a new eastern species was hailed as a botanical event. Now, no season passes but a numerous progeny of new species is transplanted from nature into the pages of our botanical serials, and still in the background many others await their turn. The doors to new discovery, thought by the last generation of botanists to be barred and locked by our earlier manuals, have been easily pushed wide open, and, lo, we find a beginning where our predecessors seemed to find the end.

Among the species of *Lespedeza* that have all this time been awaiting recognition, two well-marked eastern plants may here be distinguished.

Lespedeza velutina

Erect, stout, bushy-branched above or sometimes simple, 0.5–1.25 meters high, the appressed-ascending branches mostly